REMARKS

In view of the above amendments and the following remarks, reconsideration and further examination are requested.

Claims 1-18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Spruyt (EP 0820171) in view of Isaksson (WO 95/19671).

Claims 1-18 have been canceled without prejudice or disclaimer to the subject matter contained therein. Further, new claims 19-44 have been added.

It is submitted that the above-mentioned rejection is inapplicable to the new claims for the following reasons.

Claim 19 is patentable over Spruyt and Isaksson, since claim 19 recites an OFDM demodulator including, in part, a pilot carrier detector operable to detect pilot carriers from a plurality of subcarriers of an OFDM symbol; a phase difference calculator operable to calculate phase differences between each of the detected pilot carriers of the OFDM symbol and known pilot carriers; a phase change amount calculator operable to calculate, based on the calculated phase differences, amounts of change of phase rotation between pairs of adjacent pilot carriers of the OFDM symbol with respect to a carrier frequency and a sampling frequency; and a phase corrector operable to correct a phase of each of the data carriers of the OFDM symbol, based on the calculated phase differences and the amounts of change. The combination of Spruyt and Isaksson fails to disclose or suggest these features of claim 19.

Spruyt discloses a modem having a transmitting part TP and a receiving part RP. In the receiving part RP, a difference in sample clock speed is compensated for by a received rotation means RROT and a receive skip/stuff means RSS via a phase locked loop PLL. The receiving part RP receives a stream of DMT symbols each including a plurality of carriers. One of the carriers in each of the DMT symbols is reserved as a pilot tone. The pilot tone of each of the received DMT symbols is observed at an output of the receive rotation means RROT and is applied to a pilot tone input PT of the phase locked loop PLL. The phase locked loop PLL then measures the phase difference between the pilot tone PT and a pilot tone PT_E that was expected to be received. The resulting phase difference variation is a measure for the clock speed difference. To compensate for this clock speed difference in the received DMT symbols, each carrier of the DMT symbols is rotated over a phase that is proportional to the measured phase difference, and proportional to its own frequency. (See column 4, lines 34-55; column 9, lines 3-54; and Figure 1).

Based on the above discussion, it is apparent that Spruyt detects the single pilot tone from each of the DMT symbols and feeds the pilot tone to the phase locked loop PLL where it is used to determine a phase difference to compensate for a clock speed difference in the receiving part RP for a later received DMT symbol. In other words, the phase locked loop PLL operates as a feedback loop to correct the phase of the later received DMT symbol based on a phase difference calculated from the pilot tone of the previously received DMT symbol. Further, due to Spruyt's use of the feedback loop to correct the phase of DMT symbols, the receiving part RP will have to detect a number of pilot tones from a number of DMT symbols until the correction of the phase of the later received DMT symbols converges to an accurate level. On the other hand, claim 19 recites that the pilot carrier detector, the phase difference calculator, the phase change amount calculator, and the phase corrector utilize a plurality of pilot carriers within a single OFDM symbol to correct the phase of the data carriers of the same OFDM symbol.

Therefore, Spruyt fails to disclose or suggest any of the above-mentioned features of claim 19. As a result, it is necessary for Isaksson to disclose or suggest these features in order for the combination of Spruyt and Isaksson to render claim 19 obvious.

In the rejection, Isaksson is relied upon as disclosing an OFDM demodulation system that measures a phase difference between two frames and the phase differences are used for estimating deviations caused by phase shifting. (See page 5, lines 7-36 and Figure 9). However, as can be clearly seen in Figure 9 of Isaksson, the OFDM demodulation system disclosed therein also relies on a feedback loop as is the case in Spruyt discussed above. Therefore, Isaksson also necessarily fails to disclose or suggest the above-discussed features of claim 19. As a result, claim 19 is patentable over the combination of Spruyt and Isaksson.

As for new claims 22, 25, 26, 29, 32, 35, 38, 39 and 42, these claims are patentable over the combination of Spruyt and Isaksson for reasons similar to those discussed above in support of claim 19. That is, claims 22, 25, 26, 29, 32, 35, 38, 39 and 42 all recite features that operate so as to utilize a plurality of pilot carriers in an OFDM symbol to correct the phase of data carriers in the same OFDM symbol, which is not disclosed or suggested by the combination of Spruyt and Isaksson.

Because of the above-mentioned distinctions, it is believed clear that claims 19-44 are patentable over the combination of Spruyt and Isaksson. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of the invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present

invention as recited in claims 19-44. Therefore, it is submitted that claims 19-44 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is in invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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